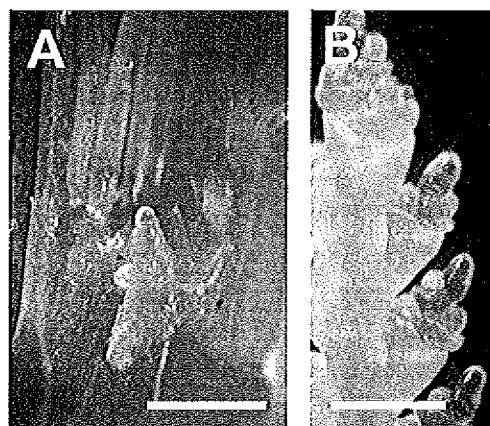
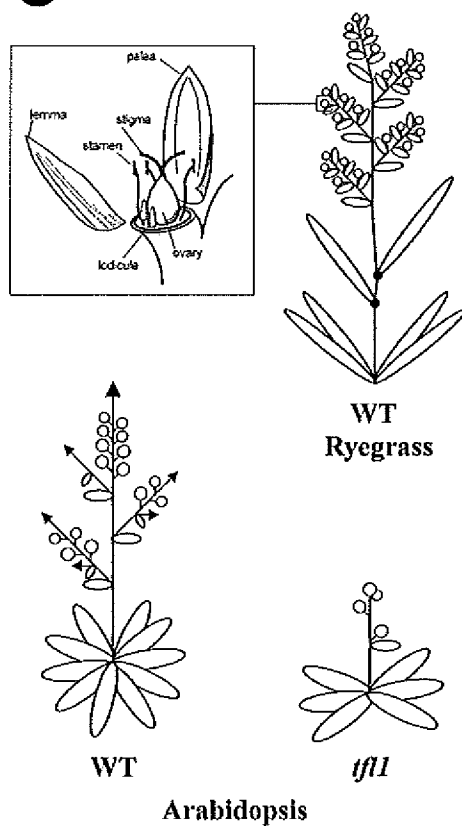


**FIGURE 1**



**C**



**FIGURE 2**

|     |  |     |     |
|-----|--|-----|-----|
|     |  | GCC | -76 |
| -75 | CAAGCCACTTCAAAGCTTTGCTACTACCAGATAGAGCATTACCCGTGCAATATAGAAATACTTGCCCTCTCCAACC |     | -1  |
| 1   | ATGTCTAGGTCTGTGGAGCCTCTATTGTTGGTCGTCTCATTTGGAGAAGTTCTCGATCCATTTAACCATGTGTG   |     | 75  |
| 76  | AAGATGGTAGCAACCTATAACTCAAACAAGCTGGTCTTCAATGGTCATGAGCTCTACCCATCAGCAGTTGTATCT  |     | 150 |
| 151 | AAACCAAGAGTAGAGGTTTCAGGGGGGTGACTTGGCATCCTTATTCACATTGGTTATGACGGACCCAGATGTCCCA |     | 225 |
| 226 | GGACCAAGTGATCCGTATCTGCGGGAGCATCTTCACTGGATTGTCAGTAATATACCTGGGACAAACAGATGCTTCA |     | 300 |
| 301 | TTTGGGGGGGAGGTCATGAGCTATGAGAGCCAAAGCCCAACATTGGAATCCACAGGTTCAATTTTGTGCTCTTC   |     | 375 |
| 375 | AAGCAGAAGCGAAGGCAGACTGTATCTGTGCCTTCCTTCAGGGATCATTTCAACACCCGCCAGTTTGCTGTGGAT  |     | 450 |
| 451 | AATGATCTTGGCCTCCCTGTGGCTGCTGTTTACTTCAATTGTCAGAGAGAGACTGCTGCCAGGAGGCGCTGAAAA  |     | 525 |
| 526 | TCGAGTTCTTGGCTATCCAGTTGTGCCAAATAAAGGCTTTTGGAGTTATGCACCTTCTTCTGAAGTCAATGCT    |     | 600 |
| 601 | CCTCTTCTACATTACTTCCTCGTGGACCATTCCTTCTTACTACAGTTTTTGCTCAGGGATCAAATAAATCAAGT   |     | 675 |
| 675 | GCATTTTGGAGATTGTATTAGATTATATTGTAAGCAGTGAGATCAGCAACCATGTGTTAACATAAGCCAGTACAT  |     | 750 |
| 751 | TAGCAGGTCCATGTTTATGGTTTCATGTTGTGTGTAAGCAGTTATCACTAGAAGGAAGGTCAGGTAGACAACCCA  |     | 825 |
| 826 | AACTGGCAAAAAAAGCTTTATCTA   |     | 851 |

**FIGURE 3A**

-3600 cactagtaacggccgcccagtggtgctggaattcagggttaatacgaactcactatagggmgctcgaggatcttcccac -3526  
-3525 cagtgtgcaattcatgtgttacttaccactctccaacttgagggaactcaagattggtggcggtccttttcgctg -3451  
-3450 aagcgatccaaaggtgtcgggtaacggttatgacagcaaacagaaaacatcgccatctgcacggaagccagaagt -3376  
-3375 agttactatgtcaaaaggatataaaaaactcactaatgaaggggatgctattgtgagataaactgctatctca -3301  
-3300 tctacaggtgagattgcaagtatacttgacaacaggccagatggatggcatgaagaaaattagggtgagta -3226  
-3225 gaaaggtaagatatgcatggatttggatgagatggctagaggggtgagagatatcaaatagaagacacttcttca -3151  
-3150 atgattcaatagaagatgcatgtgccattacagagtggattattatgtccttttaagagatgcttacgtccct -3076  
-3075 gacctttcctataacacaattacactcctttgctagacttttctgctataattgtcttctcgcgcaaaagaat -3001  
-3000 aatactatagaacttcttaatttaatttcccttattttcttggactctatcttaattctcctcctattgttcag -2926  
-2925 ccaaggactgctccttccatttacttgcgcacgggctgactgacaatgacacctgcgcgctttgtgatcaagag -2851  
-2850 cctgaatctattttctcactcctatgctgcaatgctccttctcagcaaatatggatgatatactgcagtaagctc -2776  
-2775 aaccttctgccatgtatgccagttggcaacggcaggttcagcatttggttcgcgcagctgcccgaacgctcaa -2701  
-2700 ccagccctgcagaagggtgctaaatccatcatccttactctctggagattatggaagacgaggaacgatgct -2626  
-2625 atcttcaaaaatctggcccccacagactcgcccttagttcagtcgactcctagatgaagcctgtcaatggctgta -2551  
-2550 gcgggtgctaaggcgctacgtcagttacctttacatgctagacccctgatgttagccttgatgaggaactctag -2476  
-2475 gtctaactaagttagccctgtacagtttttttctcttcttcttcttcttcttcttcttcttcttcttcttctt -2401  
-2400 ttgtgtagctttgctactcttgtatgctcccgcttctctcgacggcttcttctaataataatgaacgcatgcttg -2326  
-2325 gcatgtgttcgagaaaaaatttacttacctttagctctatattctcttccaaacttggactccacaaagcttc -2251  
-2250 aatcgcaacttgtccaagctgctgcgctggtgctgcttcttccaaatgcatccatcacactgctcctagtccag -2176  
-2175 cataccaaacaaaaagctaatacgccgcccgtgtgttttcaaatgaattatctgattgtgatgctgctaactttt -2101  
-2100 gcatatgagctcgggcataatgaatgaacttggttggcagaatgaacaagagaggacttcttgatggatatag -2026  
-2025 cactggaagctgaagttctgtgagcaggtatgatgttcccctgttaaaaaaaggctatgaaaaacttgtgat -1951  
-1950 aggtgttaagtattggttttatttgcgtgcaaattggatgcatggaaagttgtagtctactagtctgtgtg -1876  
-1875 ctactgtgctaccaacacactgtagcactgcaaaaaatttatgaaaaagctgaacagacgagatgtatctatca -1801  
-1800 attcatggaccattttgttataattttctttaaataaaaaattccgtaaagaatcaataagtggaattattg -1726  
-1725 gaaatgaaaaagtaaccaaaataactaaacttttttcaaatacagatcggtatcatggagacacactggctac -1651  
-1650 catgtgttggaatagctactagattccactacagctaggtgtcaagcaactataatggcatcagaatggagcaga -1576  
-1575 aaaaatgtcacagctgtacttcaactcactacttctagctgcacaaatgtcaagcaggcatgattgcaactagacc -1501  
-1500 agaacatagtaaatgcataaagctgtaattggctccactacttattggaacgaagaaatctattatttattgtttt -1426  
-1425 aatcgagatgaagctgtgataattttatcgctgaaatgacatttcagcactagacagcaccctagacaattaagt -1351  
-1350 ggtggtggcactgtattccattcctttattctcttccatggtgtgttcccatagtagtactacaaagaagataaaa -1276  
-1275 cagataataatggtaatgcacttgggtatcgaagtttttaggaagattctaatcttagagcaattgaactcaaca -1201  
-1200 acaacttcccttttccctaacagaaaaagaatcggtcacaacgaggttgcctaaaccaacaacactataaagacg -1126  
-1125 aacatttgagggtgaagaggttccactggaagctgcccagctgtttctgtccactagataacacctaataata -1051  
-1050 gttaaaaaacaagaggataaagaatatacagaagccagaccttaatttctgcaagcaaacatacaaatgaagtatg -976  
-975 caaaaacgaattgtatagtttaggaagcatcactccaaagtgttttattcccggttcttttctattgtccacaa -901  
-900 gggcatacttccataaatttctggaacaattacatctagatctttttaaactgaagtatttttagcatgaaaacg -826  
-825 cattgttctgtaattgtggtgtgaatttcggactgctcatctgatttccctctggtagaatacataaataattat -751  
-750 acacaacagcatgataatgtgcaaaactaagcatcaaaatctgcacattgtcatgcagaaactaggacaggagga -676  
-675 ccagcactttgtcgtttgtcctaaccaatattacatagttcagcaacataatcttcagagacccactagcatga -601  
-600 aggtgtgttatgtttcctaaagaataacatgtaggtagtgtatctacaataaccttttttggggactataaggtg -526  
-525 gaaaccatcaactgaaaagggttccatttaatacaagtaaaaaaacagattttttaactatcaataactaaaa -451  
-450 ttaaacagaatagagatataactaacaatgaaaatcaaacagttgtgcaattgtatttatcgtagttagtagtct -376  
-375 catgtttctggigaaaaattctctgcccctagaacttggagaagatgcatgaagtattactccaaactccaac -301  
-300 actgtgcaactgatagaaaagaacaaagacccttggttgctgtctcggaaaaagtggtaggtcctttctgtgg -226  
-225 ccttttcagttctttccacgcatacccaacaaaaaagaacacagatactactcatgtctcacattctcttttga -151  
-150 gcttacactcgaagcaggtcttctgctctataagtagaggtcgtcgtactctagcaatgctcagtaagcagcc -76  
-75 CAAGCCACTTCAAAGCTTTGCTACTACCAGATAGAGCATTCACCGTGCAATATAGAAATACCTTGCCCTCTCAAC -1  
1 ATGTCTAGGTCGTGGAGCCTCTTATTGTTGGTCGTGTCATTGGAGAAGTTCTCGATCCATTTAACCCTATGGTG 75  
76 AAGATGGTAGCAACCTATAACTCAACAAGCTGGTCTTCAATGGTCATGAGCTCTACCCATCAGCAGTGTATCT 150  
151 AAACCAAGAGTAGAGGTTAGGGGGGTGACTTGCATCCTTATTCACATTGgtagaatgcactcgactcgatctt 225  
226 ggaactccatattcaacttcagatattgtatgcttgttttcttcttcttcgcagtgccataaattatcatatttca 300  
301 gGTTATGACGACCCAGATGTGCCAGGACCAAGTATCCGTATCTGCGGAGCATCTTCACTGGTaaacctttctc 375  
375 atgcacagttttttctgctgggtggctactaagcacctaataatattagtagtatttttttgaagggaatatat 450

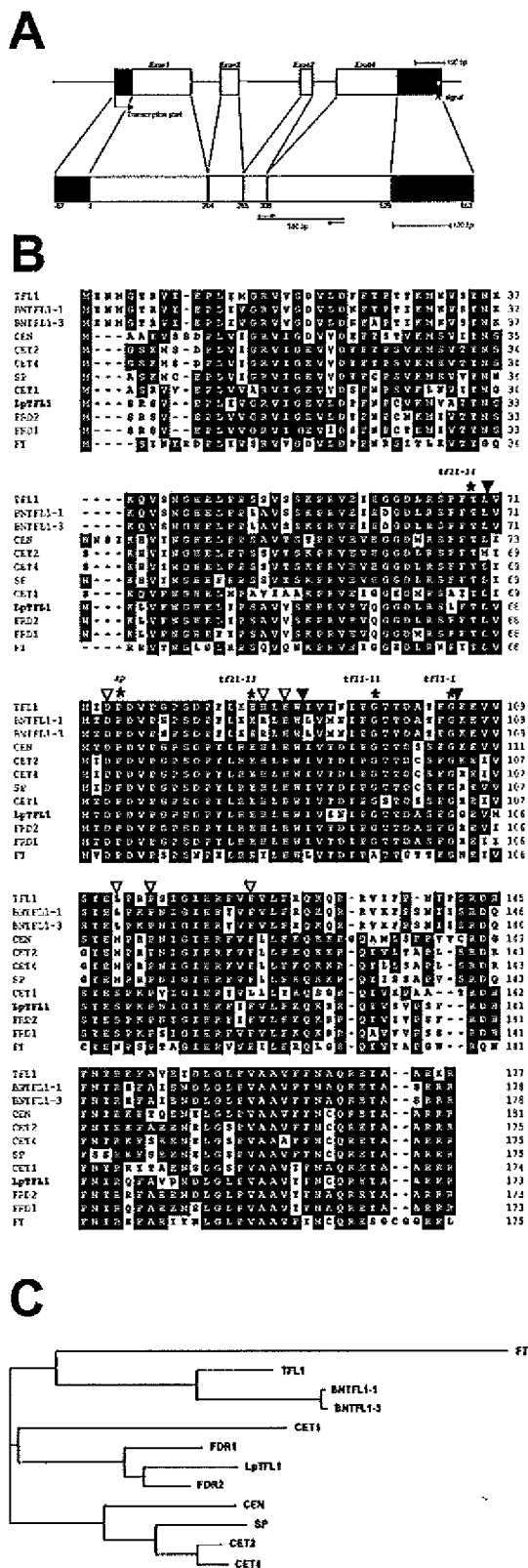
**FIGURE 3B**

451 tagtatatgttgctaaggaatatagaagtacatcttcttcttgccatatatagacagagagactattttaatag 525  
526 cacttctaacgagagtcatttaccatcccttttacacttacacaggATTGTCAGTAATATACCTGGGACAACAG 600  
601 ATGCTTCATTGGtaggtccttctctgagatttgaattggatatattctatgttctgcattttgaatgaataacca 675  
675 ctgaccttttgaattgcaggGGGGGAGGTCATGAGCTATGAGAGCCCAAAGCCCAACATTGGAATCCACAGGTTTC 750  
751 ATTTTGTGCTCTTCAAGCAGAAGCGAAGGCAGACTGTATCTGTGCCTTCCTTCAGGGATCATTTCACACCCGC 825  
826 CAGTTTGCTGTGGATAATGATCTTGGCCTCCCTGTGGCTGCTGTTTACTTCAATTGTCAGAGAGAGACTGCTGCC 900  
901 AGGAGGCGCTGAAAATCGAGTTCTTGGCTATCCAGTTGTGCCAAATAAAGGCTTTTGGAGTTATGCACCTTCTT 975  
976 TCTGAAGTCAATGCTCCTCTTCTACATTACTTCCTCGTGGACCATTTGCTTCTTTACTACAGTTTGTGCTCAGGGA 1050  
1051 TCAAATAAATCAAGTGCATTTTGGAGATTGTATTAGATTATATTGTAAGCAGTGAGATCAGCAACCATGTGTAA 1125  
1126 CATAAGCCAGTACATTAGCAGGTCCATGTTTATGGTTTCATGTTGTGTGTAAGCAGTTATCACTAGAGGAAGGT 1200  
1201 CAGGTAGACAACCCAAACTGGCAAAAAAAGCTTTATCTactgtatggcccttgccggttgatgttccatgc 1275  
1276 accttttctgacatgctgtctactgtatgccaccgccactataatgtatgagatatgaatataaaatggagatat 1350  
1351 ccaaaatatccagatgattgccactaaatgctaaatgtacatagtgggttttccacctatttgacttcacat 1425  
1426 gtccttacacaaaatcagaaaacatccatttcatgcacattgatgcacactgcataataacaatctattcagatt 1500  
1501 tggtgtaaacacaccttattttccgcatccattaatattatattagtagccctggacaggttaagcttttgcag 1575  
1576 cacagtaagtaaccggatgaaattacaatatgatcctcgagcgccctat 1624

**FIGURE 4**

1 MSRSVEPLIVGRVIGEVLDPFNPCVKMVAATYNSNKLIVFNHGLYPSAVVSKPRVEVQGGDLRSLFTLVMTDQDVP 75  
76 GPSDPYLRHLHWIVSNIPGTTDASFGGEVMSYESPKPNIGIHRFIFVLFKQKRRQTVSVPSFRDHENTRQFAVD 150  
151 NDGLPVAAVYFNCQRETAARRR 173

**FIGURE 5**



**FIGURE 6**

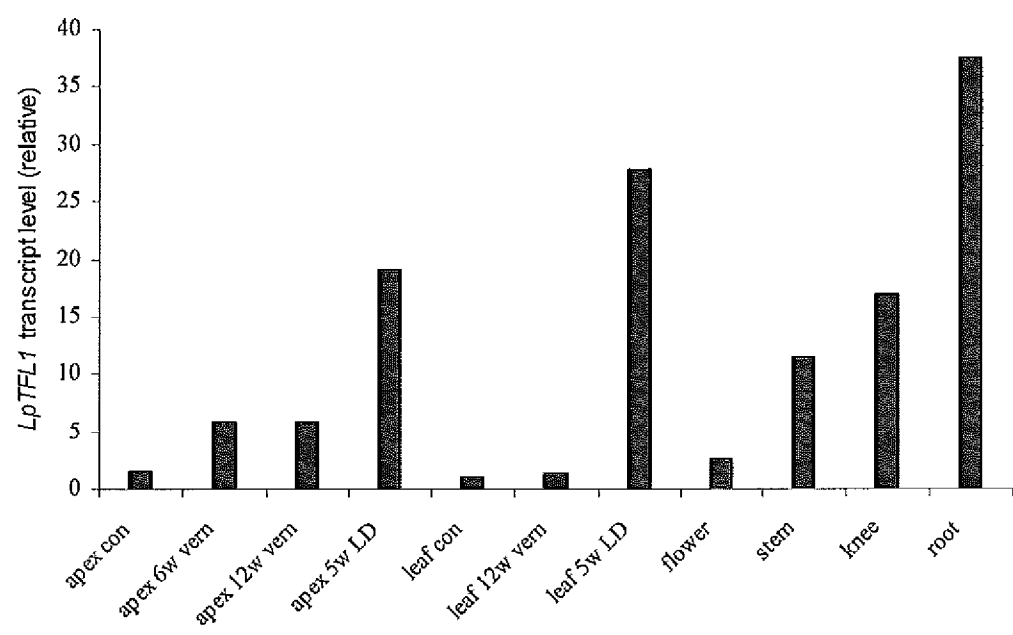
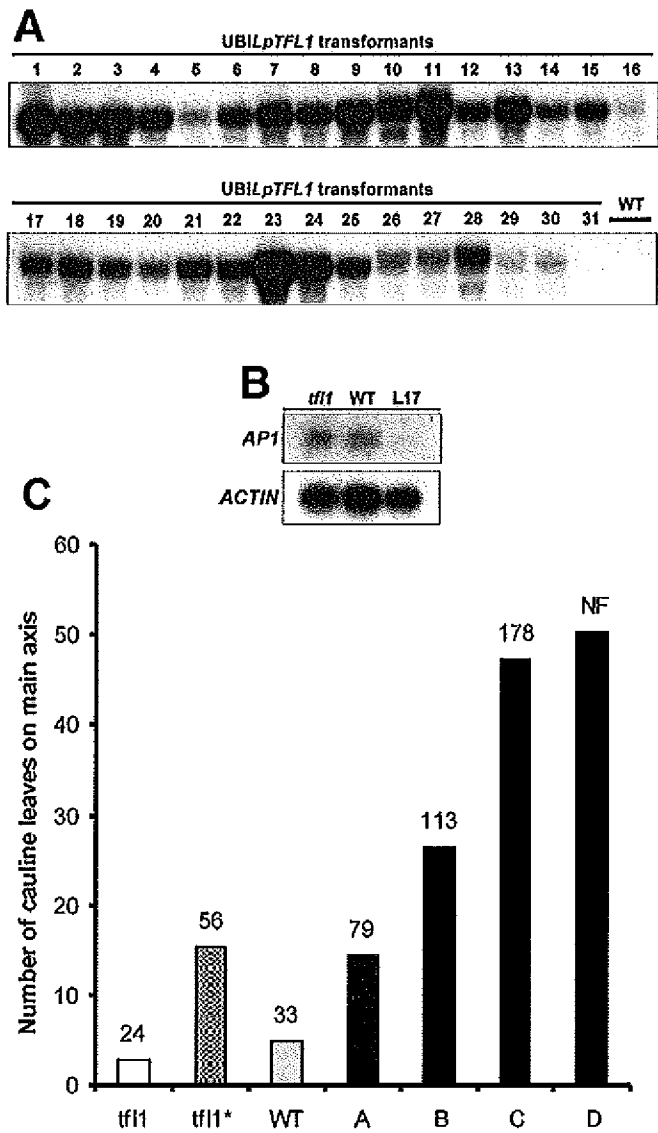


FIGURE 7



**FIGURE 8**

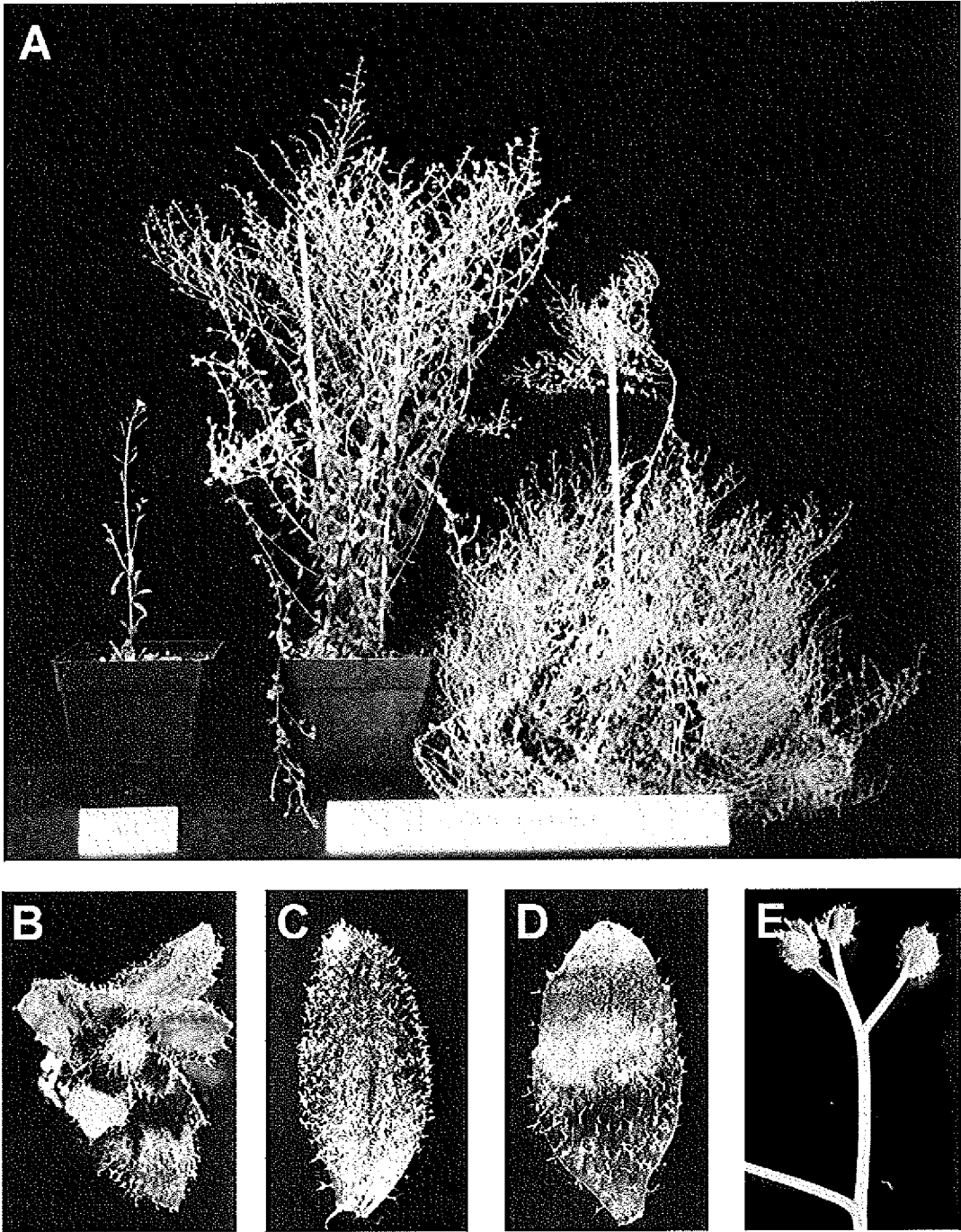
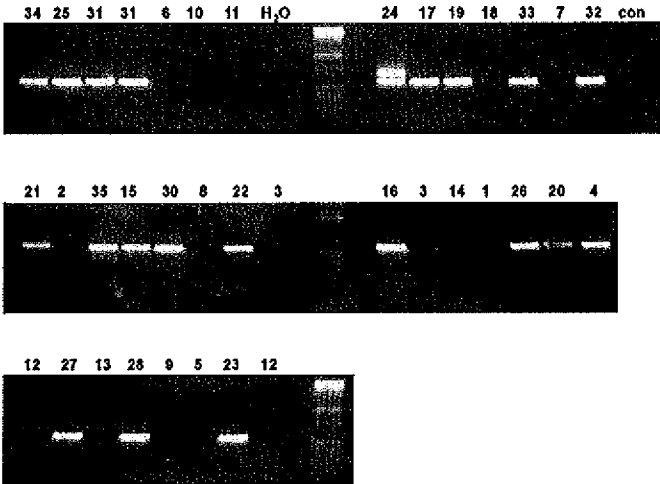




FIGURE 9



**FIGURE 10**

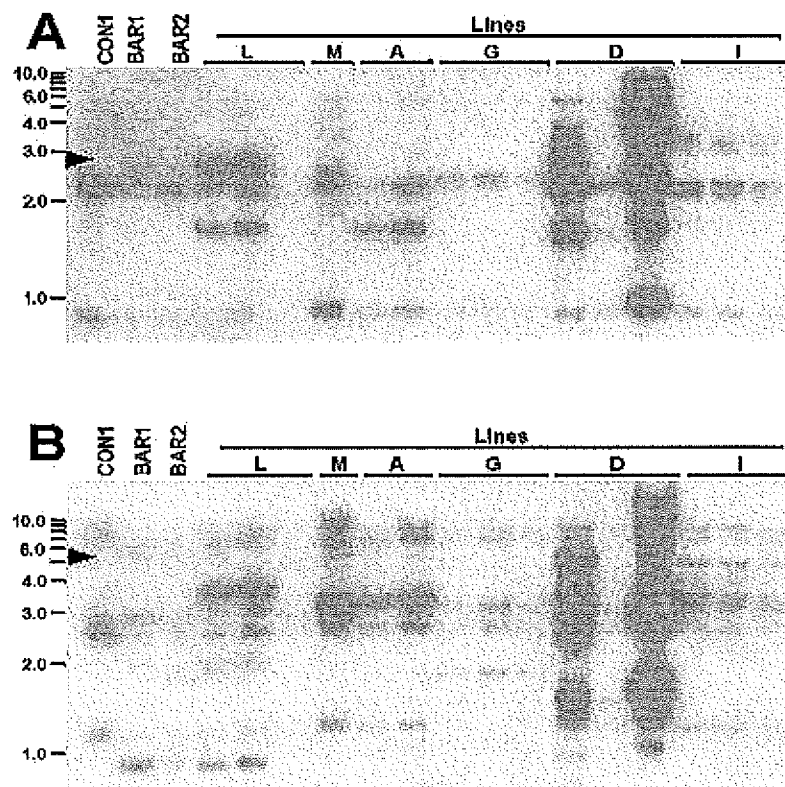


FIGURE 11

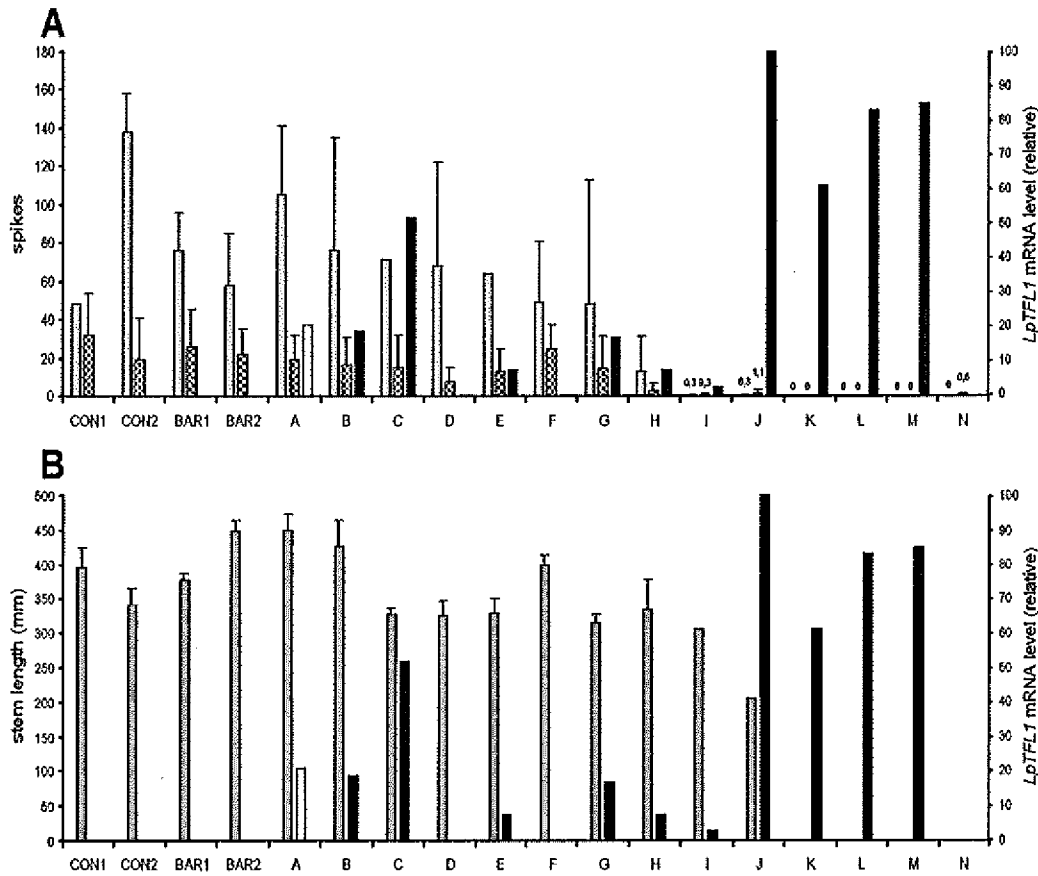
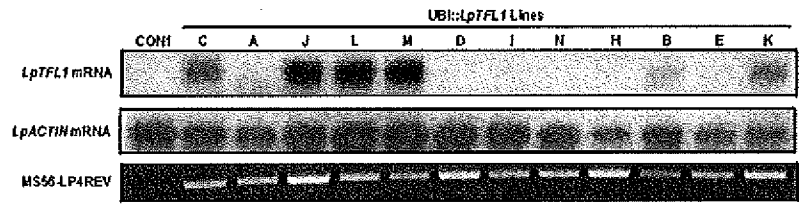
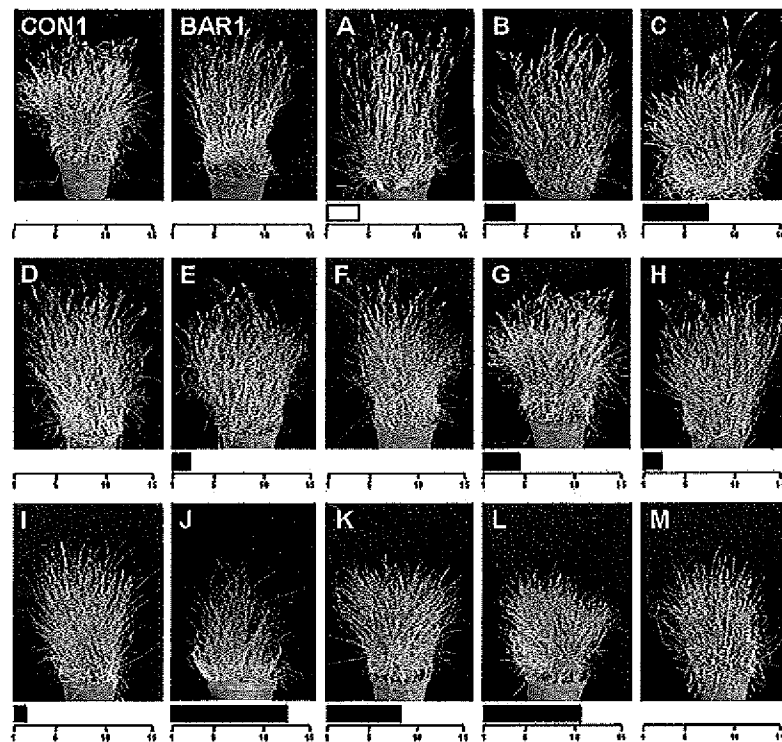


FIGURE 12



**FIGURE 13**



**FIGURE 14**

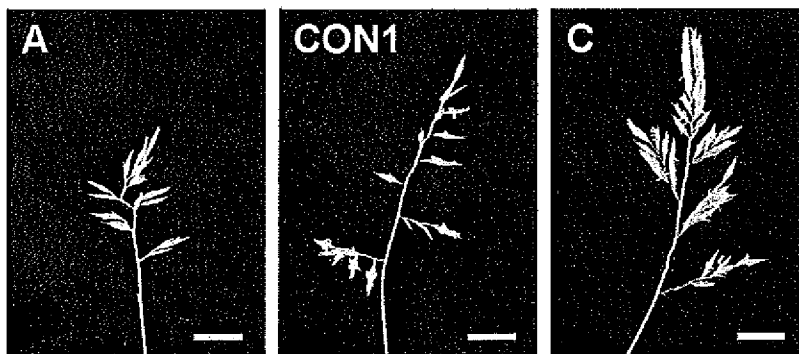
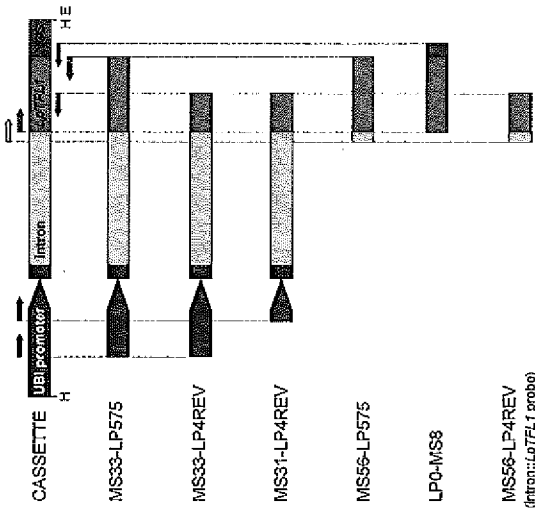


FIGURE 15: *Transformation Efficiency and Floral Activity of the Transformants*

| Cultivar | Line No. | Inflorescences | PCR | RT-PCR |
|----------|----------|----------------|-----|--------|
| F6       | CON      | 8              | -   | -      |
| F6       | 7        | 18             | -   | -      |
| F6       | 8        | 11             | -   | -      |
| F6       | 17       | 5,3            | +   | -      |
| F6       | 18       | 13,3           | +   | -      |
| F6       | 24       | 12             | +   | +      |
| F6       | 29       | 0              | +   | +      |
| F6       | 32       | 0              | +   | +      |
| F6       | 33       | 4              | +   | +      |
| F6       | 36       | 0              | +   | +      |
| ACTION   | 2        | 1,8            | -   | -      |
| ACTION   | 5        | 3              | -   | -      |
| ACTION   | 9        | 0,3            | -   | -      |
| ACTION   | 12       | 2              | -   | -      |
| ACTION   | 13       | 0              | -   | -      |
| ACTION   | 16       | 0              | +   | -      |
| ACTION   | 19       | 7,3            | +   | -      |
| ACTION   | 21       | 4              | +   | +      |
| ACTION   | 22       | 0,3            | +   | +      |
| ACTION   | 23       | 0              | +   | +      |
| ACTION   | 25       | 0,3            | +   | +      |
| ACTION   | 27       | 0              | +   | +      |
| ACTION   | 28       | 4              | +   | +      |
| ACTION   | 31       | 0              | +   | +      |
| ACTION   | 34       | 0              | +   | +      |
| ACTION   | 35       | 0              | +   | +      |
| TELSTAR  | 1        | 10             | -   | -      |
| TELSTAR  | 3        | 1              | -   | -      |
| TELSTAR  | 4        | 11,6           | -   | -      |
| TELSTAR  | 6        | 10,8           | -   | -      |
| TELSTAR  | 10       | 5              | -   | -      |
| TELSTAR  | 11       | 3,8            | -   | -      |
| TELSTAR  | 14       | 0              | -   | -      |
| TELSTAR  | 15       | 3,8            | +   | -      |
| TELSTAR  | 20       | 3,5            | +   | -      |
| TELSTAR  | 26       | 0              | +   | +      |
| TELSTAR  | 30       | 3,7            | +   | +      |

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Figure 16: Transgene integration analysis by PCR using different primer combinations

| Primer combination | UBI::LpTFL1 transgenic lines <sup>a</sup>   |     |     |   |   |   |      |   |   |      |   |      |   |   |   |   |      |     |
|--------------------|---|-----|-----|---|---|---|------|---|---|------|---|------|---|---|---|---|------|-----|
|                    | CASSETTE  | CON | BAR | A | B | C | D    | E | F | G    | H | I    | J | K | L | M | N    | P   |
|                    |  |     |     |   |   |   |      |   |   |      |   |      |   |   |   |   |      |     |
|                    |   |     |     |   |   |   | 0.8  |   |   |      |   |      | + |   | + |   | 0.8  | 2.3 |
|                    |   |     |     |   |   |   | 0.55 |   |   |      |   |      | + |   | + |   | 0.55 | 2.0 |
|                    |   |     |     | + |   |   | +    |   |   | 1.4  | + |      | + |   | + | + |      | 1.5 |
|                    |   |     |     |   | + | + | +0.5 | + |   | +0.5 | + | +    | + | + | + | + | +0.5 | 0.6 |
|                    |   |     |     |   | + | + | +M   | + |   | +    | + | +1.8 | + | + | + | + | +1.6 | 0.6 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + | + | + | + | +    | 0.4 |
|                    |   |     |     | + | + | + | +    | + | + | +    | + | +    | + |   |   |   |      |     |

<sup>a</sup>plus indicates that the observed fragment had the expected size, whereas numbers indicate that the fragment size deviated from the expected size (numbers in bold), blank field indicates that no PCR-product was detected; E, *EcoRI*; H, *HindIII*